What is claimed is:

1. A carbonyl reductase having the following physicochemical properties:
Reactivity
It reduces 4-haloacetoacetate ester to produce (S)-4-halo-3 hydroxybutyrate ester using reduced beta-nicotinamide adenine dinucleotide as an electron donor.
Substrate specificity
It has high reductase activity for 4-chloroacetoacetate ester but does not substantially dehydrogenate any optical isomers of 4-halo-3-hydroxybutyrate ester and
shows higher enzymatic activity when used with reduced beta-nicotinamide adenine dinucleotide as an electron donor than reduced beta-nicotinamide adenine dinucleotide phosphate.

2. The carbonyl reductase of claim 1, which has additional physicochemical properties below:
Optimal pH
5.0 to 6.0
Substrate specificity
It does not substantially dehydrogenate isopropanol and does not reduce acetoacetate.
Molecular weight
About 32,000 when determined by sodium dodecylsulfate-polyacrylamide gel electrophoresis.

3. A substantially pure polypeptide comprising the amino acid sequence represented by SEQ ID NO: 2 and having the enzymatic activity for catalyzing the reduction of 4-haloacetoacetate ester to (S)-4-halo-3-hydroxybutyrate ester using reduced beta-nicotinamide adenine dinucleotide as an electron donor.

4. A substantially pure polypeptide comprising the amino acid sequence represented by SEQ ID NO: 2 containing up to 30 conservative amino acid substitutions, and having the following enzymatic activities:
reduces 4-haloacetoacetate ester to produce (S)-4-halo-3-hydroxybutyrate ester using reduced beta-nicotinamide adenine dinucleotide as an electron donor;
has high reductase activity to 4-chloroacetoacetate ester but does not substantially dehydrogenate any optical isomers of 4-halo-3-hydroxy-butyrate ester; and
shows higher enzymatic activity when used with reduced beta-nicotinamide adenine dinucleotide as an electron donor than reduced beta-nicotinamide adenine dinucleotide phosphate.

5. A substantially pure polypeptide encoded by a nucleic acid that hybridizes with the nucleic acid consisting the nucleotide sequence represented by SEQ ID NO: 1 under stringent conditions, and having the following enzymatic activities:

reduces 4-haloacetoacetate ester to produce (S)-4-halo-3-hydroxybutyrate ester using reduced beta-nicotinamide adenine dinucleotide as an electron donor;

has high reductase activity for 4-chloroacetoacetate ester but does not substantially dehydrogenate any optical isomers of 4-halo-3-hydroxybutyrate ester; and

shows higher enzymatic activity when used with reduced beta-nicotinamide adenine dinucleotide as an electron donor than reduced beta-nicotinamide adenine dinucleotide phosphate.

6. The substantially pure polypeptide of claim 5, comprising an amino acid sequence having at least 70% homology with the amino acid sequence represented by SEQ ID NO: 2.

7. An isolated nucleic acid encoding the polypeptide of claim 3.

8. An isolated nucleic acid encoding the polypeptide of claim 4.

9. An isolated nucleic acid encoding the polypeptide of claim 5.

10. An isolated nucleic acid encoding the polypeptide of claim 3 comprising the nucleotide sequence represented by SEQ ID NO: 1.

11. An isolated nucleic acid hybridizing with the nucleic acid consisting of the nucleotide sequence represented by SEQ ID NO: 1 under stringent conditions, and encoding a polypeptide having the following enzymatic activities:

reduces 4-haloacetoacetate ester to produce (S)-4-halo-3-hydroxybutyrate ester using reduced beta-nicotinamide adenine dinucleotide as an electron donor;

has high reductase activity for 4-chloroacetoacetate ester but does not substantially dehydrogenate any optical isomers of 4-halo-3-hydroxybutyrate ester; and

shows higher enzymatic activity when used with reduced beta-nicotinamide adenine dinucleotide as an electron donor than reduced beta-nicotinamide adenine dinucleotide phosphate.

12. The nucleic acid of claim 11 comprising a nucleotide sequence having at least 70% homology with the nucleotide sequence represented by SEQ ID NO: 1.

13. A recombinant vector comprising the nucleic acid of claim 7.

14. A recombinant vector comprising the nucleic acid of claim 8.

15. A recombinant vector comprising the nucleic acid of claim 9.

16. A transformant carrying the vector of claim 13.

17. A transformant carrying the vector of claim 14.

18. A transformant carrying the vector of claim 15.

19. The transformant of claim 16, which is a microorganism.

20. A method for producing a carbonyl reductase, the method comprising culturing the transformant of claim 16.

21. A recombinant vector comprising the nucleic acid of claim 7 and the nucleic acid encoding a glucose dehydrogenase.

22. The vector of claim 21, wherein a glucose dehydrogenase is derived from *Bacillus subtilis*.

23. A transformant carrying the vector of claim 21.

24. The transformant of claim 21, which is a microorganism.

25. A method for producing an enzyme, the method comprising culturing a microorganism belonging to the genus *Kluyveromyces* and producing the enzyme of claim 1.

26. The method of claim 25, wherein the enzyme comprises the amino acid sequence represented by SEQ ID NO: 2.

27. The method of claim 25, wherein the microorganism belonging to the genus *Kluyveromyces* is *Kluyveromyces aestuarii*.

28. A method for producing a polypeptide, the method comprising culturing the transformant of claim 16.

29. The method of claim 28, wherein the transformant is a microorganism.

30. A method for producing alcohol, the method comprising reacting ketone with the carbonyl reductase of claim 1, microorganisms producing it, or treated microorganisms.

31. The method of claim 30, wherein the carbonyl reductase comprises the amino acid sequence represented by SEQ ID NO: 2.

32. A method of producing alcohol comprising reacting ketone with the transformant of claim 16.

33. The method for producing alcohol of claim 30, wherein ketone is a derivative of 4-haloactoacetate ester, and alcohol is a derivative of (S)-4-halo-3-hydroxybutyrate ester.

34. The method for producing alcohol of claim 33, wherein the derivative of ethyl 4-haloactoacetate is 4-chloroacetoacetate ester, and alcohol is ethyl (S)-4-chloro-3-hydroxybutyrate.

35. The method for producing alcohol of claim 30, the method further comprising converting oxidized beta-nicotinamide adenine dinucleotide to its reduced form.

36. The method for producing alcohol of claim 35, wherein oxidized beta-nicotinamide adenine dinucleotide is reduced by a conversion of glucose to delta-gluconolactone by using a glucose dehydrogenase.

37. The method for producing alcohol of claim 36, wherein glucose dehydrogenase is expressed by the transformant.